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Atty Docket No.: 10006299-1

App. Ser. No.: 09/854,580

AUG 3 - 2006

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the amendments above and the following remarks.

By virtue of the claim amendments, Claims 1, 8, 15, and 21 have been amended. Claims 1-4, 6, 8-12, 14, 15, 18, 20, 21, 25, and 27-33 remain pending in the present application, of which Claims 1, 8, 15, and 21 are independent.

No new matter has been introduced by way of the claim amendments; entry thereof is therefore respectfully requested.

Response to Arguments

The Official Action Has Failed to Prove that the Proposed Combination of Shildkraut et al., Kado et al., and Fowler Discloses that the Entire Image is Enhanced such that the Pixels in the One or More Human Faces Have the Target Levels for the Mean Value or the Variation Value of the Pixels

The Official Action asserts that Claims 1, 8, 15, and 21 do not recite that the appearance of the entire image is enhanced. Applicants respectfully disagree with this assertion because the recitation, "automatically enhancing an appearance of the image...", clearly refers to the entire image and not solely to the face region as alleged in the Official Action. However, in order to further prosecution of this application, Claims 1, 8, 15, and 21 have been amended to explicitly recite that it is the *entire image* that is enhanced through the claimed mapping technique.

The Official Action also asserts that Claims 1, 8, 15, and 21 do not recite that the entire image is enhanced based upon one individual segment of the image. Again, Applicants respectfully submit that this feature was clearly recited in these claims at least because these claims recited "automatically enhancing an appearance of the image by using a mapping

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technique to produce the image with target levels for a mean value or a variation value of the pixels in the one or more human faces.” In other words, Claims 1, 8, 15, and 21 recited that the entire image is enhanced to produce the image such that the pixels in the one or more human faces have the target levels for a mean value or a variation value of the pixels. Again, in an effort to further prosecution of this application, Applicants have amended Claims 1, 8, 15, and 21 to explicitly state that the entire image is automatically enhanced such that the pixels in the one or more human faces have the target levels for the mean value or the variation value of the pixels.

The Official Action asserts that Fowler discloses that each and every segment of an entire image (of lofargrams) is enhanced. The Official Action, however, fails to indicate that the entire lofargram image of Fowler is enhanced based upon an individual segment or lofargram strip. As such, although Fowler discloses that a lofargram image is enhanced, Fowler clearly fails to disclose that the lofargram image is enhanced to produce an image with target levels for a mean value or a variation value of the pixels in the one or more human faces as claimed in Claims 1, 8, 15, and 21.

For at least the foregoing reasons, the proposed combination of Shildkraut et al., Kado et al., and Fowler fails to disclose each and every element claimed in Claims 1, 8, 15, and 21.

The Proposed Combination of Documents Fails to Disclose that the Target Levels for a Mean Value or a Variation Value are Desirable Lightness and Contrast Levels that are Determined Through a Determination of Human Visual Preferences

The Official Action asserts that Kado et al. discloses that “pixel values that are to be enhanced to achieve target levels for a mean are lightness values”. This assertion may be correct; however, this assertion differs from the claimed features that the target levels for a

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mean value or a variation value are desirable lightness and contrast levels that are determined through a determination of human visual preferences. In other words, Kado et al. fails to at least disclose that the brightness correction disclosed in column 7, lines 24-52 is based upon a determination of human visual preferences. Instead, Kado et al. discloses that the brightness correction is performed in an effort to make the face images more uniform so that comparisons of the face images may be made with greater accuracy.

The Official Action also states that Fowler "discloses adjusting the pixel values to achieve a desired variance value, which results in a different contrast." Again, this assertion differs from the claimed feature that the target levels for a mean value or a variation value are desirable lightness and contrast levels that are determined through a determination of human visual preferences. In addition, and as discussed in greater detail below, Fowler is concerned with enhancing lofargram data such that the signals in the lofargrams may be better distinguished from background noise. As such, the enhancement performed on the lofargram data would not be based upon human visual preferences.

The Official Action further states that the aim of the redeye reduction in Shildkraut et al. is to make the image more appealing, and thus "further enhancement by mapping the pixel values of the image to obtain desirable target levels for a mean value or a variation value...can benefit Shildkraut's invention by further enhancing the image." In this passage, the Official Action has asserted a benefit in enhancing Shildkraut et al., but has failed to indicate that Shildkraut et al. discloses that the target levels for a mean value or a variation value are desirable lightness and contrast levels that are determined through a determination of human visual preferences. In fact, it is respectfully submitted that because Shildkraut et al. is only directed to redeye reduction in images, that Shildkraut et al. would not rely upon

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human visual preferences to perform the red-eye reduction. Instead, the red-eye reduction would merely be performed to remove the red-eye effect from the images.

For at least the foregoing reasons, it is respectfully submitted that the proposed combination of documents fails to disclose all of the features of independent Claims 15 and 21.

The Proposed Combination of Documents is Improper

The Official Action asserts that the proposed combination of Shildkraut et al., Kado et al., and Fowler is proper because they are all in the field of endeavor of image enhancement. Although these documents may be in the same broad field of image enhancement, the field of endeavor of Fowler at least differs from that of Shildkraut et al. and Kado et al. because Fowler is directed to sonar images and Shildkraut et al. and Kado et al. are directed to images of faces. It seems highly unlikely for one of ordinary skill in the art of facial recognition and facial image enhancement to look at the art of sonar images. As such, it appears likely that the proposed combination of documents was based upon improper hindsight reasoning.

In addition, even if one of ordinary skill in the art were somehow motivated to combine these documents, the proposed combination would still fail to disclose each and every element claimed in Claims 1, 8, 15, and 21. For instance, the proposed combination would still fail to disclose or fairly suggest that an entire image is automatically enhanced to produce the image such that the pixels in one or more human faces have target levels for a mean value or a variation value of the pixels.

Accordingly, it is respectfully submitted that the proposed combination of documents is improper and should be withdrawn.

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Claim Rejection Under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

Claims 1, 2, 8, 10, 15, 21, and 27-33

The Official Action sets forth a rejection of Claims 1, 2, 8, 10, 15, 21, and 27-33 under 35 U.S.C. §103(a) as allegedly being unpatentable over the disclosure contained in U.S. Patent No. 6,292,574 to Shildkraut et al. in view of U.S. Patent No. 6,181,806 to Kado et al. and further in view of U.S. Patent No. 5,410,618 to Fowler. This rejection is respectfully traversed because Shildkraut et al. considered singly or in combination with Kado et al. and Fowler fails to disclose all of the elements of independent Claims 1, 8, 15, and 21 and the claims that depend therefrom.

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The Proposed Combination of References Fails to Disclose the Claimed Invention

Independent Claims 1, 8, 15, and 21, recite in various forms, *inter alia*, that an appearance of an entire image is enhanced by using a mapping technique to produce the image with target levels for a mean value or a variation value of the pixels in one or more human faces located in the image, where the entire image is automatically enhanced such that the pixels in the one or more human faces have the target levels for the mean value or the variation value of the pixels.

The Official Action relies upon Shildkraut et al. for its disclosure of an algorithm that automatically detects human faces in an image. In addition, the Official Action indicates that Shildkraut et al. fails to disclose that an appearance of the image is automatically enhanced by using the mapping technique claimed at least in Claims 1, 8, 15, and 21.

In an effort to make up for this deficiency in Shildkraut et al., the Official Action relies upon the disclosures contained in column 7, lines 30-52 of Kado et al. and Figure 1, reference numerals 3-7, column 1, lines 30-40, column 3, lines 15-30, and column 6, lines 48- column 7, line 5 of Fowler. More particularly, the Official Action argues that it would have been obvious to combine Shildkraut et al., Kado et al., and Fowler to somehow arrive at the claimed invention as set forth in independent Claims 1, 8, 15, and 21. The obviousness of the proposed combination is alleged upon the assertion that enhancing the image of the faces in Shildkraut et al. is an improvement over simply reducing red eye artifacts in Shildkraut et al.

It is respectfully submitted, however, that references cited in the Official Action fails to at least disclose that the entire image in which the one or more human faces are located is enhanced by using the above-described mapping technique, such that the pixels in the one or more human faces have the target levels for the mean value or the variation value of the

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pixels. As such, the proposed combination of these references set forth in the Official Action fails to render the claimed invention obvious.

As asserted in the Official Action, Shildkraut et al. merely discloses techniques for reducing red eye artifacts in images containing human faces. (Shildkraut et al., column 1, lines 36-48). Shildkraut et al. therefore fails to disclose that the entire image in which one or more human faces are located is enhanced at all.

Kado et al. pertains to the identification of a person using facial features. The identification is performed by comparing an image of a person with a stored image to determine similarities. Kado et al. discloses, in column 7, lines 24-52, that the brightnesses of various patches of human faces are corrected "to prevent misjudgment due to a difference in the position of the light source in photographing." Kado et al. also discloses that "the brightness of a patch whose normal is closer to the old direction of the light source is lowered, and the brightness of a patch whose normal is closer to the new direction of the light source is raised...[so that] misjudgment can be prevented under different illumination conditions."

In other words, Kado et al. discloses that the "patches" of a human face, and not the human face nor the entire image containing the human face, are corrected to make it appear that the human face is being illuminated under the same conditions as when the stored image was obtained. One can reasonably assume that the "patches" referred to in Kado et al. pertain to dark spots, such as shadows, and light spots, such as light reflections, because Kado et al. is only interested in attempting to make the lighting conditions of when the stored image was obtained and the image under consideration was obtained as uniform as possible such that the two images are more readily comparable. Kado et al. therefore also fails to disclose that the

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entire image in which one or more human faces are located is enhanced as claimed in Claims 1, 8, 15, and 21.

Accordingly, modification of Shildkraut et al. based upon the disclosure contained in Kado et al. as proposed in the Official Action would still fail to disclose or fairly suggest each and every element claimed in independent Claims 1, 8, 15, and 21. More particularly, for instance, the proposed modification would at least fail to disclose that the entire image in Shildkraut et al. is enhanced. In addition, Fowler does not make up for these deficiencies.

As stated in the Official Action, Fowler "discloses a mapping technique specifically designed for lofargram images." Fowler discloses, in Figure 1, that the mapping technique includes segmenting the lofargram into strips (step 3), computing mean and variance for each strip (step 4), using a rule base to determine the new mean and variance for the strip (step 5), determining scalar and bias for the strip (step 6), and scaling and biasing each pixel in each strip (step 7). Accordingly, Fowler discloses that the mean and variance for each of the strips are separately and individually computed and that the scalar and bias are individually determined for each strip. In addition, once the pixels in the strips have been scaled and biased (step 6), the strips are stitched back together (step 8).

In other words, therefore, Fowler does not disclose that the entire lofargram image is enhanced based on any of the individual strips. Furthermore, therefore, Fowler fails to disclose that the entire image is enhanced such that the pixels in the one or more human faces have the target levels for the mean value of the variation value of the pixels. Accordingly, the proposed modification of Shildkraut et al. based upon the disclosure contained in Fowler, as asserted in the Official Action, would also fail to disclose or suggest each and every element claimed in Claims 1, 8, 15, and 21. More particularly, for instance, the proposed modification would at least fail to disclose that the entire image in Shildkraut et al. is

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enhanced such that the pixels in the one or more human faces have the target levels for the mean value or the variation value of the pixels.

Therefore, even assuming for the sake of argument that one of ordinary skill in the art would somehow have been motivated to combine the disclosures of Shildkraut et al., Kado et al. and Fowler as proposed in the Official Action, the proposed combination would still fail to disclose all of the features of the claimed invention as set forth in Claims 1, 8, 15, and 21. For at least this reason, the Official Action has failed to establish that Claims 1, 8, 15, and 21 and the claims that depend therefrom are *prima facie* obvious in view of the Shildkraut et al., Kado et al., and Fowler disclosures.

With regard also to independent Claims 15 and 21, none of the cited references discloses that the target levels for a mean value or a variation value are desirable lightness and contrast levels that are determined through a determination of human visual preferences. Instead, Shildkraut et al. is concerned with automatic face detection and red eye reduction, Kado et al. is concerned with matching the brightness levels of patches in human face images with another human face image, and Fowler is concerned with enhancing lofargram data to better distinguish signals of interest from background noise. As such, for instance, none of these references would appear to benefit from enhancing images based upon the target levels as claimed in Claims 15 and 21.

The Proposed Combination of References is Improper

The motivation to combine the disclosures of Shildkraut et al., Kado et al., and Fowler proffered in the Official Action is clearly improper. More particularly, the proposed motivation for wanting to combine these references is improper because Fowler pertains to

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enhancement of vertical frequency strips of sonar image data; whereas Shildkraut et al. pertains to red eye detection and Kado et al. pertains to the identification of a person using facial features, by comparing two images of the person. Thus, although Shildkraut et al., Kado et al., and Fowler are concerned with image enhancement, all three of these references are concerned with completely different fields of image enhancement and one of ordinary skill in the art would not have been motivated to combine these references as asserted in the Official Action.

In fact, the Official Action has provided no evidence that the proposed combination of Shildkraut et al., Kado et al., and Fowler would result in giving "a user better control in enhancement process so that the resultant image can have a desired appearance or perceptual quality specific to the user's preference" as alleged in the Official Action. In addition, because the disclosures contained in Shildkraut et al., Kado et al., and Fowler are so drastically different, there is no clear indication as to what the proposed combination would yield. It appears extremely likely, however, that the proposed combination would not yield the features claimed in Claims 1, 8, 15, and 21 of the present invention and the claims that depend therefrom.

Accordingly, it is respectfully submitted that the proposed combination of Shildkraut et al., Kado et al., and Fowler is improper and should be withdrawn. The Examiner is therefore respectfully requested to withdraw the rejection of Claims 1, 8, 15, and 21 and the claims that depend therefrom and to allow these claims.

Claims 3, 4, 11, 12, and 18

The Official Action sets forth a rejection of Claims 3, 4, 11, 12, and 18 under 35 U.S.C. §103(a) as allegedly being unpatentable over the disclosure contained in Shildkraut et

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al. in view of Kado et al. and Fowler, and further in view of U.S. Patent No. 6,680,745 to Center, Jr. et al. This rejection is respectfully traversed because Shildkraut et al. considered singly or in combination with Kado et al., Fowler, and Center, Jr. et al. fails to disclose all of the elements of independent Claims 1, 8, and 15 and the claims that depend therefrom.

The Official Action asserts that Center, Jr. et al. discloses that contrast and/or color is changed to enhance an appearance of an image. The Official Action does not however, assert that Center, Jr. et al. discloses automatically enhancing an appearance of an image by using a mapping technique to produce the image with target levels for a mean value or a variation value of the pixels in the human faces, as claimed in independent Claims 1, 8, 15, and 21. The Official Action also cannot reasonably assert that Center, Jr. et al. discloses these features. As such, Center, Jr. et al. does not make up for the deficiencies in Shildkraut et al., Kado et al., and Fowler as described above. The proposed combination of Shildkraut et al., Kado et al., Fowler, and Center, Jr. et al., therefore, fails to disclose all of the features of independent Claims 1, 8, 15, and 21 and the claims that depend therefrom.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 3, 4, 11, 12, and 18 and to allow these claims.

Claims 6, 14, 20, and 25

The Official Action sets forth a rejection of Claims 6, 14, 20, and 25 under 35 U.S.C. §103(a) as allegedly being unpatentable over the disclosure contained in Shildkraut et al. in view of Kado et al. and Fowler, and further in view of U.S. Patent No. 6,009,209 to Acker et al. This rejection is respectfully traversed because Shildkraut et al. considered singly or in combination with Kado et al., Fowler, and Acker et al. fails to disclose all of the elements of independent Claims 1, 8, 15 and 21 and the claims that depend therefrom.

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The Official Action asserts that Acker et al. discloses "reducing or removing the red eye artifact from the human faces." The Official Action does not however, assert that Acker et al. discloses automatically enhancing an appearance of an image by using a mapping technique to produce the image with target levels for a mean value or a variation value of the pixels in the human faces, as claimed in independent Claims 1, 8, 15, and 21. The Official Action also cannot reasonably assert that Center, Jr. et al. discloses these features. As such, Center, Jr. et al. does not make up for the deficiencies in Shildkraut et al., Kado et al., and Fowler as described above. As such, Acker et al. does not make up for the deficiencies in Shildkraut et al., Kado et al., and Fowler as described above. The proposed combination of Shildkraut et al., Kado et al., Fowler, and Acker et al., therefore, fails to disclose all of the features of independent Claims 1, 8, 15, and 21 and the claims that depend therefrom.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 6, 14, 20, and 25 and to allow these claims.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below.

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Please grant any required extensions of time and charge any fees due in connection
with this request to deposit account no. 08-2025.

Respectfully submitted,

Dated: August 3, 2006

By



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